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Mazdoor Kisan Shakti Sangathan

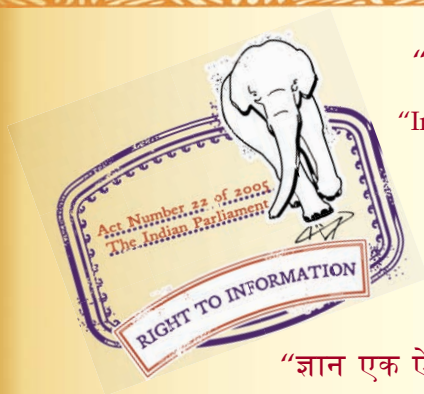
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 4732 (1968): Rivets for Shipbuilding [PGD 31: Bolts, Nuts and Fasteners Accessories]



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“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

**SPECIFICATION FOR
RIVETS FOR SHIPBUILDING**

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR RIVETS FOR SHIPBUILDING

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Indian Standard

SPECIFICATION FOR RIVETS FOR SHIPBUILDING

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 6 June 1968, after the draft finalized by the Screw Threads and Fasteners Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 Each classification society has evolved its own specifications for materials of construction of a ship, in general, and ships built in India are mostly governed by the rules and requirements of Lloyd's Register of Shipping, London.

0.3 This specification for rivets for ships' structure meets the rules and requirements of Lloyd's Register of Shipping, which are being followed for the merchant ships being built in India and abroad for India.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the results of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements of mild steel rivets, 16 to 33 mm in diameter, for ships' structure.

2. MATERIAL

2.1 Rivets shall be manufactured from mild steel rivet bars, conforming to IS : 3298 - 1965†.

3. MANUFACTURE

3.1 Rivets may be made either by cold or hot forging. If rivets are made by the cold forging process, they shall subsequently be stress-relieved.

*Rules for rounding off numerical values (*revised*).

†Specification for mild steel rivet bars for shipbuilding.

4. FREEDOM FROM DEFECTS

4.1 Rivets shall be free from imperfections and heavy scales. The ends of the rivets shall be cleanly sheared.

5. DIMENSIONS AND TOLERANCES

5.1 The dimensions and tolerances of rivets shall be as given in Table 1.

5.2 **Length**—The tolerance on the length of the rivets shall be ± 1.5 mm.

5.3 The maximum inclination (see Fig. 1) of the head shall not exceed 2° .

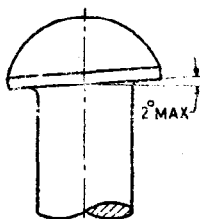


FIG. 1 TOLERANCE ON RIVET HEAD

5.4 Tolerance on the other dimensions of rivets shall be as given in Table 1.

6. DESIGNATION

6.1 The shipbuilding rivets shall be designated by the type of rivet head, size, length and the number of this standard.

Examples:

- a) A snap head rivet of size 20 mm, length 45 mm and conforming to this standard shall be designated as:
Snap Hd Rivet 20 \times 45 IS: 4732
- b) A countersunk head rivet of size 24 mm, length 65 mm and conforming to this standard shall be designated as:
CSK Hd Rivet 24 \times 65 IS: 4732

7. TESTS FOR FINISHED RIVETS

7.1 Rivets shall be selected for testing by the Inspector or an authorized representative and tested in his presence.

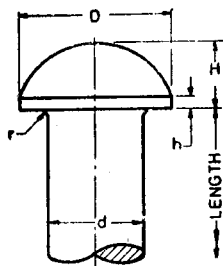
7.2 **Sampling**—The sampling of rivets shall be in accordance with IS: 2614-1964*.

*Methods for sampling of fasteners. (Since revised).

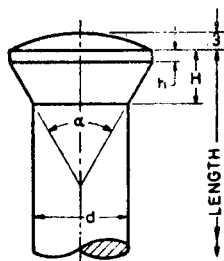
TABLE 1 DIMENSIONS FOR RIVETS FOR SHIPBUILDING

(Clauses 5.1 and 5.4)

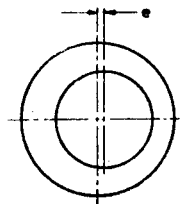
All dimensions in millimetres.



SNAP HEAD



COUNTERSUNK HEAD



Size <i>d</i>		<i>D</i>		<i>H</i>			<i>h</i>	<i>r</i>	LENGTHS			CSK ANGLE α		ECCENTRICITY	
<i>Nom</i>	Tol	Basic	Tol	Basic		Tol			<i>Max</i>	<i>Max</i>	From	To	Increment Steps		Basic
				Snap	CSK										
16	+0.8 -0.4	25.6	± 0.5	11.2	9	+0.8 -0	2	1.5	27	90	3	60°		0.8	
18		28.8		12.6	12				30	102	3				
20		32.0		14.0	15				33	114	3				
22	+1.2 -0.4	35.2	± 1.2	15.4	15	+1.2 -0	2.5	2.0	45	126	3	45°	+0° -2°	1.0	
24		38.4		16.8	20					45	126				3
27		43.2		18.9	20					63	162				3
30		48.0		21.0	20.5	+1.6 -0			3.0	69	180				3
33		52.8		23.1	20.5					69	180				3

7.3 Bend Test—The rivet shank shall be bent cold and hammered until the two parts of the shank touch in the manner shown in Fig. 2. There shall be no fracture on the outside of the bend.

7.4 Flattening Test—The rivet head shall be flattened, while hot, in the manner shown in Fig. 3. The head shall be flattened until its diameter is two and half times the diameter of the shank. There shall be no cracking at the edges.

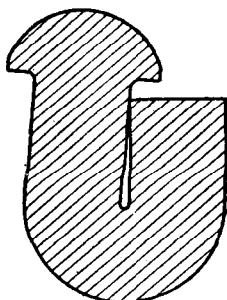


FIG. 2 BEND TEST

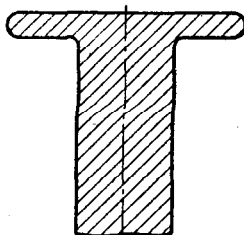


FIG. 3 FLATTENING TEST

7.5 Sulphur Print Test—Rivets shall be selected for examination by means of sulphur prints and the material shall be free from marked central segregation of sulphur and other non-metallic substances.

8. MARKING AND CERTIFICATES

8.1 Such marks as may be specified by the purchaser shall be stamped (raised or sunk) during the process of manufacture on the heads of all rivets.

8.1.1 Test and Inspection Certificates from the Inspection Authority shall be furnished by the supplier.

8.1.2 The packages containing the rivets may also be marked with the ISI Certification Mark.

NOTE—The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

9. GENERAL SUPPLY CONDITIONS

9.1 The general requirements for the supply of rivets shall be in accordance with IS : 1387-1959*.

10. PRESERVATION AND PACKING

10.1 Preservation — Unless the purchaser has specified specific treatment at the time of enquiry or at the time of placing the order, the rivets shall be supplied in a well cleaned condition and suitably protected against rust in a manner which is left to the discretion of the manufacturer.

10.2 Packing — The rivets shall be packed in accordance with the best trade practice.

*General requirements for the supply of metals and metal products. (Since revised).